whether the foodstuff is within the tolerance limits or whether the foodstuff portion has moved during the first cutting step 108. If the foodstuff portion has moved during the cutting step 108, the foodstuff will be rescanned in step 112 and in step 114, a two dimensional image of the foodstuff will be generated. If the foodstuff portion has not moved, a second decision will ask whether the second cut path in two axes has also been determined. If the second cut path has been determined in an earlier step, such as step 104, the foodstuff will be portioned along a second and third axis. Otherwise, input 118 is received and a second cutting path is determined in step 116 coming from either step 116 or step 124. Thereafter follows a step 120 of cutting the foodstuff and the end 122 of the method.

B1 concluded

The paragraph beginning at page 8, line 19 has been amended to read as follows:

B2 Referring to FIGURE 2, in a preferred embodiment of a method according to the present invention, the foodstuff portion 200 will travel on an endless conveyor system including endless conveyor belt 202. An initial step in a method of portioning foodstuff in accordance with the present invention is scanning the foodstuff to be portioned as shown in FIGURE 1. Any number of foodstuffs desired to be portioned may be loaded onto the moving endless conveyor system 202. The conveyor is suited to carry the foodstuff along a processing line where it may be processed by the various apparatus used to carry out the steps of the present invention.

The paragraph beginning at page 9, line 3 has been amended to read as follows:

B3 A scanner can also include the receiver 208 to receive and detect the amount of radiation attenuated by an object. Attenuation can occur by passing through the object or by reflection from the object. When radiation passes through a foodstuff, a certain amount of radiation is absorbed by the foodstuff through which it passes, therefore there will be a relationship in the amount between the radiation sent to the foodstuff and the radiation received after it has passed through the foodstuff. The cause of absorption is believed to reside in the chemical bonds within

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the molecules of the foodstuff. Radiation once attenuated can be collected, and converted into a useable form. Photodiodes, for example, may be used to convert an amount of radiation in the visible range into a voltage or current signal. For X-rays, a scintillating material may be used to generate visible light capable of detection by a photodiode. This method is described in U.S. Patent No. 5,585,603 to Vogeley, Jr., which is herein incorporated by reference. Other methods teach the use of a video camera to determine the size and/or shape of a foodstuff. These methods and apparatus are described in Reissue Patent Nos. 33,851 and 33,904 to Rudy et al., which are herein incorporated by reference. B3 concluded

The paragraph beginning at page 11, line 8 has been amended to read as follows:

B4 In still other alternate embodiments, the computer 210 can be in communication with a network system 230 which allows the computer 210 to talk and share information with other computers. Computer 210 can also drive other periphery hardware besides the scanner system 204. For instance, computer 210 can direct the operation of a conveyor 232, or cutting devices, generally denoted as 234. Finally, computer 210 can receive information from various sensors 236 to guide or direct a multitude of systems.

The paragraph beginning at page 13, line 1 has been amended to read as follows:

cont'd locate In a preferred embodiment of the method of the present invention, a cutting step 108 will follow the comparison step 104 in FIGURE 1. As the foodstuff portion 200 travels on a conveyor system, the conveyor 202 will have brought the foodstuff portion to a cutting station 218 as shown in FIGURE 3. The cutting device 220 will be controlled by the computer 210 with the appropriate cutting path determined in an earlier step. Preferably, the cutting device in a method according to the present invention will use a band knife or an oscillating knife if the cut to be made is a long cut, but a high pressure water jet may also be used as well, to cut the foodstuff in accordance with the directions from the computer. Such cutting

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devices are described in U.S. Patent No. 5,931,178 to Pfarr, which is herein incorporated by reference. Bandsaws and blades are described in U.S. Patent No. 5,937,080 to Vogeley, Jr. et al., which is herein also incorporated by reference. However, other cutting devices, such as high pressure gas or lasers, that are well-known in the art may also be used.

The paragraph beginning at page 15, line ~~34~~ 30 has been amended to read as follows:

Referring again to FIGURE 2, an embodiment of a foodstuff 200 to be portioned in three dimensions using a method in accordance with the present invention is shown. A conveyor 202 is suited to carry the foodstuff portion 200, such as a chicken breast, through the various steps of the method. Shown is a representative foodstuff portion 200 with the desired shape 215. A step in the method of the present invention will have generated a three dimensional map of the chicken breast and the computer will have compared the map with the desired shape. The computer will have determined the most correct fit of the desired shape within the generated map. Shown in phantom are the cutting paths for achieving a foodstuff portion in the desired shape. The chicken breast 200 has a first, a second, and a third dimension representing thickness, width and length, respectively. In a step according to a method of the present invention, the foodstuff portion will be cut along a first path to establish one dimension, such as the thickness, as shown in FIGURE 3. It should be noted that the cutting path need not follow a linear path. The first cutting path may be an arcuate or rounded path. It should also be noted that the first cutting path may make two passes. For example, a first pass may cut along the top of the portion and a second pass will cut along the bottom of the portion. This would be desirable if the chicken breast was not lying exactly prone on the conveyor or if the chicken breast had a portion of bone or other undesirable constituent still attached to it.

B5

The paragraph beginning at page 18, line 13 has been amended to read as follows:

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An embodiment of a foodstuff to be portioned in three dimensions using a method in accordance with the present invention is shown in FIGURE 10. FIGURE 10 shows the cutting path along two dimensions, thickness and width. First cutting step 108 can cut along cutting paths 1000 and 1002 to remove regions 1004 and 1006, while second cutting step 120 can cut along paths 1008 and 1010 to remove regions 1012 and 1014. It should also be understood that there exist a third dimension, length, which can be trimmed in the second cutting step 120. In the embodiment, a bone fragment 1005 or other undesired constituent may be avoided by skewing or rotating the desired shape within the generated shape to fit the desired shape in the generated shape, thereby avoiding the bone. The resulting cutting path is skewed or angled to avoid the undesired constituent. The cutting path to shape the thickness of the portion can be cut by a first and a second pass of the cutting device to portion the top and the bottom surfaces.

BV

The paragraph beginning at page 18, line ~~27~~ 19 has been amended to read as follows:

Another embodiment of a foodstuff to be portioned in three dimensions using a method in accordance with the present invention is shown in FIGURE 11. FIGURE 11 shows the cutting path along two dimensions, thickness and width. In the embodiment, a foodstuff portion may be cut into a plurality of desired shapes. The shapes may be arranged into one generated map of the foodstuff via the use of a computer, such that the maximum amount of the foodstuff is utilized. Shown are several desired shapes to be cut from one foodstuff portion. Also shown are multiple cutting paths where several cuts are made by multiple passes of the cutting device or multiple heads. A bone fragment 1007 can also be avoided by fitting desired shapes around the bone fragment.

BW

The paragraph beginning at page 19, line 3 has been amended to read as follows:

FIGURE 12 schematically illustrates how a foodstuff portion 1100 may be cut to a desired thickness in accordance with the present invention. The apparatus 1101 illustrated in

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FIGURE 12 includes a first conveyor system 1102 for delivering foodstuff portions 1100 to the underside of a vacuum chamber 1104. The vacuum chamber is shown as including a housing 1106 in generally oblong shape having a rounded leading end portion 1107 overlying the conveyor 1102 which transitions to a substantially flat bottom section 1108 spaced above the upper rung of the belt 1110 of the conveyor. At approximately the end of the conveyor 1102 the vacuum chamber housing extends diagonally upwardly along section 1112 to a vertical end wall 1114 of the chamber. The top surface 1116 of the chamber housing 1106 is substantially flat. A belt 1118 is trained around the top 1116, left end 1107, flat bottom 1108 and diagonal 1112 sections of the vacuum chamber housing, as well as around a drive pulley 1113 positioned outwardly adjacent the end wall 1114 of the chamber housing. The drive pulley is mounted to the wall 1114 by a bracket 1122. The drive pulley can be driven by numerous methods, for instance by an electric motor, hydraulic motor or otherwise.

The paragraph beginning at page 19, line 19 has been amended to read as follows:

B8

The foodstuff portions 1100, being carried by the belt 1118, are trimmed to thickness by a band knife 1130, spaced beneath the diagonal section 1112 of the vacuum chamber. Rather than a band knife, another type of knife, such as an ultrasonic knife, may be utilized. The distance between the knife 1130 and the adjacent surface of the housing 1106 can be varied to adjust the thickness of the foodstuff portion 1100 as desired.

In the Claims:

Claims 15, 16, and 22 have been amended as follows:

5/15/07

B9

15. (Amended) An apparatus for processing foodstuff portions along a first axis, comprising:

a first conveyor run to carry foodstuff portions on a first side;

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